ELG

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Agricultural Memorandum No. 587

Evaporation from bare soil in September - L P Smith

The analysis outlined in Ag Mem 586 was repeated for September at Cranwell,

using E = evaporation from bare soil
PE = potential evaporation
B = moisture in top 20 mm at end of August assuming a harvest during that month.
D - number of days with less than 2 mm rain
R = rainfall, Aug 31 to Sept. 29.

Then, it was found

$$\frac{E}{PE} = 1.029 + 0.15 \frac{R + B}{PE} - 0.037D \quad \text{—— 1}$$

The multiple correlation was 0.92 and the mean error of estimates 4 mm.

If the maximum value of R + B was taken as PE. then the equation became

$$\frac{E}{PE} = 1.04 + 0.4 \frac{R + B}{PE} - 0.033D \quad \text{—— 2}$$

with a mean error of less than 3 mm and multiple correlation 0.95

The data are given in the Appendix.

APPENDIX

Year	Rainfall	Bank	PE	D	E	E estimated	
						1	2
1939	17	1	59	26	17.9	22	18
1940	12	0	75	28	14.5	21	14
1941	14	10.5	53	29	12.2	15	14
1942	36	12	69	25	34.1	32	34
1943	59	7.5	62	24	40.5	35	40
1944	69	13.5	55	22	38.6	39	39
1945	40	5	53	25	32.7	26	29
1946	87	7	62	20	49.0	48	48
1947	26	0	69	23	26.1	34	30
1948	61	0	59	24	38.8	33	38
1949	35	8	70	26	27.9	29	33
1950	63	0	64	23	38.3	37	43
1951	26	20	62	24	37.7	32	34
1952	39	0	56	25	31.2	26	27
1953	21	5	65	26	24.6	25	22
1954	43	9	67	21	42.0	42	44
1955	41	0	67	29	15.5	21	22
1956	42	17	56	24	33.7	31	36
1957	99	0	53	21	38.6	42	39
1958	45	16	59	26	38.7	28	34
1959	2	0	70	30	3.0	13	4
1960	76	20	60	22	46.7	43	43
1961	54	4	62	24	37.5	34	38
1962	64	7	58	22	40.3	38	41
1963	68	3	63	26	30.1	31	37
1964	7	0	69	30	9.0	13	6
1965	127	8	55	20	45.6	51	43
1966	12	18	58	27	26.7	21	21
1967	38	0	56	22	38.6	32	33
1968	117	3.5	56	18	44.6	53	47

Any comments or suggestions on this paper should be referred to the author.

Meteorological Office
Bracknell

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